

Claims

[c1] A large gauge pneumatic launcher comprising:

A compressed gas input connector, which may simultaneously function as an attachment apparatus to connect to a host paintball gun or marker at the low pressure valve port or another retrofitted access point, where compressed gas may be accessed from the host marker, or otherwise connect to a separate source of compressed gas or CO₂.

A pressure chamber which is attached to the input connector, and stores a volume of compressed air from the host marker.

A valve chassis hereinafter referred to as a Warnock Valve Chassis. The Warnock Valve Chassis is connected to the pressure chamber and will house the spool valve, hereinafter referred to as a Warnock Valve, and its other components. The said chassis comprises multiple air input and air output ports, an orifice to retain a set screw, a set screw, a valve bore for positioning and allowing the actuation of the Warnock Valve, a valve stem orifice, at the end of the valve bore enabling the axial movement of the Warnock Valve, a compression spring that rests on

the stem on the Warnock Valve within said chassis, on the same axis, between the valve spool and the interior wall of the valve bore, adjacent to the valve bore orifice, to assist in resetting the Warnock valve to the closed position after actuation.

A Warnock Valve that comprises a spool valve and numerous O rings, and rests in the closed position within the Warnock Valve Chassis. The Warnock Valve may be actuated into the open position by pushing or pulling it along the same axis of and through the valve bore in the Warnock Valve Chassis, by pneumatic, manual, mechanical, electrical, electromagnetic or electro-mechanical, or other kinetic means.

A diverter disc or other component that aids in the direction of air flow into the barrel from the air output ports in the Warnock Valve Chassis. The diverter disc may be screwed into or otherwise positioned in the barrel between the exhaust or output end of the Warnock Valve Chassis and the barrel.

A barrel that is connected to the Warnock Valve Chassis, that may receive and direct a large gauge projectile toward its intended target, after compressed air is released from the pressure chamber, through the Warnock Valve Chassis and past the diverter disc to apply a force of air pressure sufficient

enough to move the projectile through the barrel at a designated velocity. The barrel may be designed to load a projectile through the muzzle end, the breech end, a spring-loaded gate along the length of the barrel, an open chamber where an ammunition magazine may be fitted or other means of loading the barrel chamber.

And various attachment and sealing components such as O rings, set screws and springs.

[c2] An "under-barrel" design where launcher as described in claim 1 may be attached to a host paintball marker, at a position under the barrel of the host marker, so as to provide a large gauge (greater than .70 caliber) projectile launcher in addition to the small gauge (less than .070 caliber) launcher normally attached to the host marker. This under-barrel arrangement allows the operator of the marker to attach one source of compressed gas to the host marker and fire both small and large gauge projectiles from the same marker, with the same or separate trigger mechanisms. The launcher in claim 1 may be attached via a universal connector to the low pressure port of the host marker, or by another means, to another position along the flow of compressed air from the host marker's source of compressed gas.

[c3] A Warnock Valve Chassis and Warnock Valve as described in claim 1 that may be fitted as an actuating valve for any type of pneumatic launcher such as a pneumatic mortar, cannon, "rocket" launcher or any other type of launching or projectile casting system that uses compressed gas to move a projectile or projectiles.